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CERTIFICATE OF MAILING  
37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date of Deposit: Dec 24, 2003 By: James E. Hudley

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

IN RE APPLICATION OF  
Ronald P. Schmidt

DOCKET NO. TA-00519

SERIAL NO.: 09/898,633

EXAMINER: Sing P. Chan

FILED: 07/02/2001

GROUP ART UNIT: 1734

**TITLE: Adhesive-Infused 3-D Woven Textile  
Preforms for Structural Joints**

**DECLARATION**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

I, Stephen D. Owens, state the following:

I am employed by Lockheed Martin Corporation as an engineer. My title is Engineering Senior Staff, Joint Strike Fighter Airframe Certification. I have been employed with Lockheed Martin and its predecessor, General Dynamics, for nineteen years.

Lockheed Martin Corporation is the assignee of the above-identified patent application.

I am a co-author of a technical paper *Interlaminar Reinforced Composites Development for Improved Damage Tolerance* (copy of first page attached). That technical paper was presented at a Closed Session of the Society for Advancement of Material and Process Engineering (SAMPE) in 2000. I did not attend that particular session, but have attended other

Closed Sessions and am familiar with how these sessions are held. Closed Sessions are meetings generally attended by representatives from the United States government and various military contractors. The purpose of the meetings is to communicate general information about various research projects underway at the different facilities. In my experience, often the U.S. government will request various contractors to present papers at these meetings.

Entrance to a Closed Session is restricted. I do not have any written materials concerning entry to the particular Closed Session where the subject technical paper was given. However, I am attaching to this declaration a portion of document advertising a recent SAMPE meeting. As shown on the second page, in order to be admitted to a Closed Session, one needs to have certification credentials based on a DD Form 2345 that has been approved by the government, or one must be employed by a company that is in the DoD's quarterly qualified U.S. contractor access list. I am attaching also to this declaration a sample of a DD Form 2345 for a particular individual. In my experience, about forty to fifty people attend a Closed Session of this nature. My understanding is that approximately the same number attended the Closed Session during which the subject technical paper was presented. The restrictive entry rules as explained above applied to the Closed Session during which the subject technical paper was presented.

I do not believe that any copies of the subject technical paper were given to the attendees at that particular Closed Session. My employer had a copy because I was a co-author. The copy has a warning printed on the first page, which states::

This paper contains research findings and technology developments in airframe composites technology that may constitute a significant enhancement to the national defense, and to the economic vitality of the United States; therefore access by foreign firms, institutions or persons must be controlled. The provisions of the International Traffic in Arms Regulation (22 CFR pt. 121 et seq.), the DOD Industrial Security Regulation (DOD 5220.22-R) and the Department of Commerce Export Regulation (15 CFR pt. 770 et. Seq.) may be applicable to this submittal.

Consequently, not only was the attendance to the Closed Session restricted, the dissemination of the subject technical paper was also restricted.

While the attendees at the Closed Session would have been interested in the subject matter of the subject technical paper, many others that were not present would also be interested. The information in the subject technical paper presented at the Closed Session is valuable not only to those attending, but to numerous others that did not or could not attend. There are thousands in the defense industry that might have an interest but would not be aware of such a meeting or be unable to attend. The subject matter of the paper deals with composite fiber technology for providing strong and lightweight structural members. This technology has applications in many industries other than the defense industry, such as general aviation, automobiles, and boats. Consequently, there are countless numbers of individuals that may have interest in this type of information but are prohibited from attending because they lack the DOD requirement certification and do not work for qualified defense contractors.

The subject technical paper was not and is still not publicly available. It is not listed on any databases to my knowledge that are accessible to the general public. Also, to my knowledge, SAMPE will not provide copies of the subject technical paper to the general public.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are

punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dec 02, 2003  
Date

  
Stephen D. Owens

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## INTERLAMINAR REINFORCED COMPOSITES DEVELOPMENT FOR IMPROVED DAMAGE TOLERANCE

Steven Wanthal, Robin Wippich-Dienhart, Anne Cenedella  
The Boeing Company, St. Louis, MO

Gerald Mabson, Lyle Deobald  
The Boeing Company, Seattle, WA

Steve Owens  
Lockheed Martin, Ft. Worth, TX

Victor Li, Dave Kane  
Northrop Grumman, El Segundo, CA

### ABSTRACT

Studies have shown that more affordable composite structure can be achieved through the application of bonded/cocured designs. However, bonded/cocured joints without Z-direction reinforcement have demonstrated poor damage tolerance thereby limiting application of unitized designs on airframe structure. This paper summarizes several efforts within the Composite Affordability Initiative (CAI) - Pervasive program to evaluate and implement application of 3D textile preforms, stitching, and Z-fiber™ insertion technologies as a means to improve damage tolerance of composite structure. A review of the various Z-direction interlaminar reinforcement concepts and their limits of application will be presented. Specific applications of these technologies on CAI-developed structures will be reviewed. This paper also summarizes both the analytical and experimental work conducted to date on stitched and Z-fiber™ pinned skin-to-spar joints. Finally, this paper will address the current state-of-the-art in interlaminar reinforcements and suggest areas where further work is needed to prepare these processes for production.

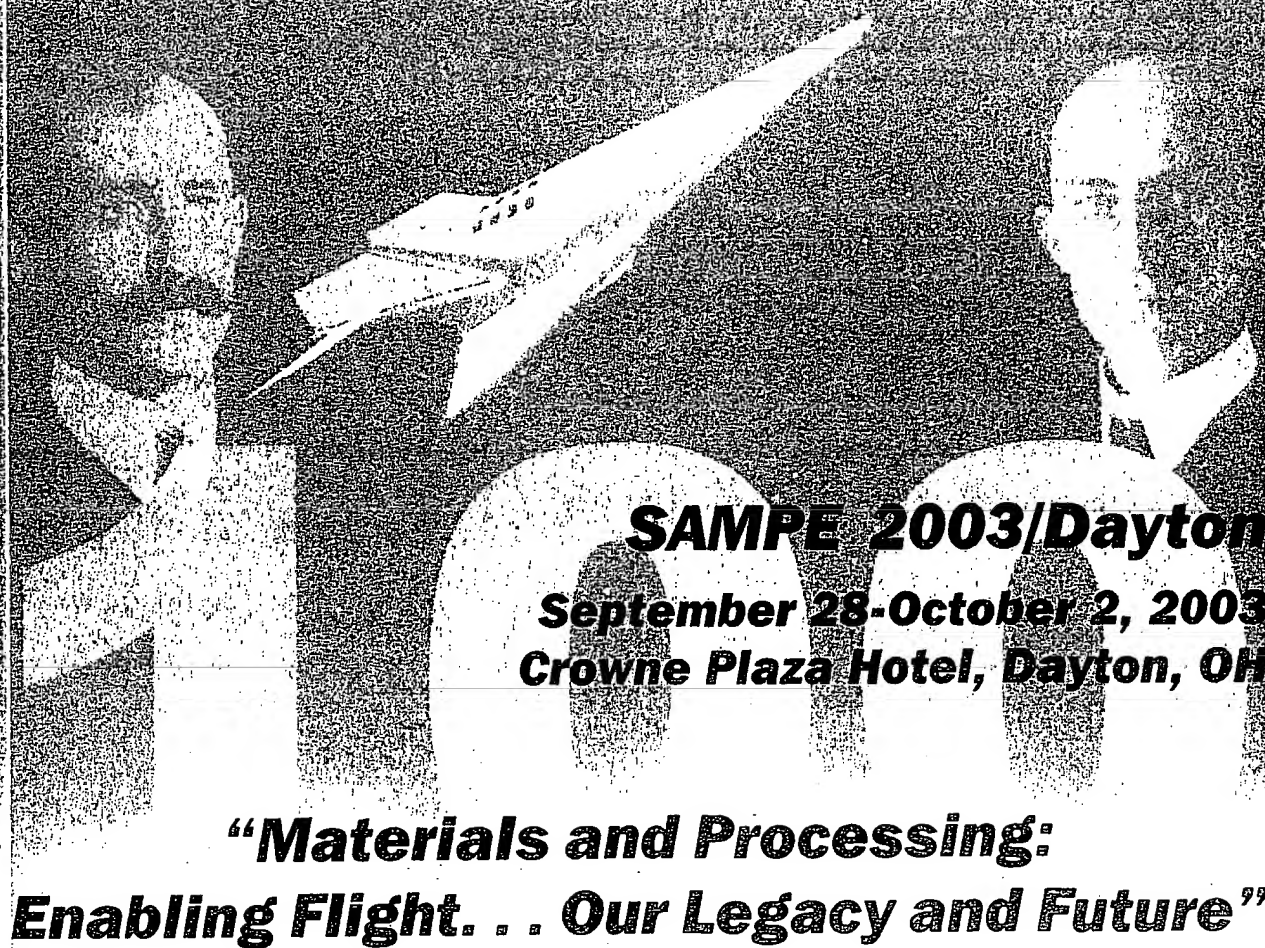
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This paper contains research findings and technology developments in airframe composites technology that may constitute a significant enhancement to the national defense, and to the economic vitality of the United States; therefore access by foreign firms, institutions or persons must be controlled. The provisions of the International Traffic in Arms Regulation (22 CFR pt. 121 et seq.), the DOD Industrial Security Regulation (DOD 5220.22-R) and the Department of Commerce Export Regulation (15 CFR pt. 770 et. seq.) may be applicable to this submittal.

# **Technical Program and Exhibitor's Guide**

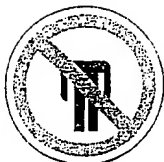
**Celebrating 100 Years  
of Flight**



**SAMPE 2003/Dayton**  
**September 28-October 2, 2003**  
**Crowne Plaza Hotel, Dayton, OH**

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Enabling Flight. . . Our Legacy and Future"**

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NO ADMITTANCE

# SAMPE Closed Papers Admittance



NO ADMITTANCE

Admittance to closed papers is implemented by DoD Directive 5230.25 under the provisions of Section 1217 of Public Law 98-94. Employees of the US and Canadian governments need only provide personal photographic identification and proof of employment by the government. Admission requires US and Canadian citizens and resident aliens to provide:

1. Proof of citizenship or resident alien card, **PLUS**
2. Personal photographic identification (i.e., driver's license, passport, corporate ID, etc.) **PLUS**
3. Certification credentials based on DD Form 2345.

**An Individual's certification credentials may be:**

1. Copy of an approved DD Form 2345 for the individual, or
2. Copy of an approved DD Form 2345 for the individual's employer plus evidence of employment status with that employer (i.e., corporate ID, business card, etc.), or
3. A listing of the individual's employer in DoD's quarterly Qualified US Contractor Access List plus evidence of employment status with the listed employer.

Requests for DD Form 2345 may be directed to SAMPE International Business Office, PO Box 2459, Covina, CA 91722-8459 or phone 626/331-0616 ext. 610. Questions about how to complete the DD Form 2345 should be directed to the Defense Logistics Services Center (800/352-3572).

Persons who are not citizens or resident aliens of US or Canada and wish to attend closed papers must submit a request to the Foreign Liaison Office in the US Defense Intelligence Agency through their embassy in Washington, DC. The US Department of Defense may authorize the attendance of foreign nationals when their attendance advances intergovernmental programs.

**ANYONE NOT COMPLYING WITH THE PRECEDING ATTENDANCE  
REQUIREMENTS WILL NOT BE ADMITTED TO CLOSED PAPERS  
-NO EXCEPTIONS-**

## TOURS\*



Thursday, October 2, 1:00 p.m. - 4:30 p.m. Two tours have been arranged by the conference committee: Carillon Park and Huffman Prairie Flying Field and Interpretive Center

Tours will be simultaneous, so select only one.

Transportation (van) will be provided for a minimal charge of \$7. You will be responsible for any required admittance fees.

You must sign up for the tours by Wednesday noon, October 1. A minimum of 6 attendees for each tour is required, otherwise the tour will be cancelled.

Meet in the hotel lobby, and the vans will leave at 1:00 p.m., returning by 4:30 p.m.

*\*See outside back cover for an additional tour*

### HISTORIC CARILLON PARK

*Tour Historic Carillon Park—A Walk Back in Time*

One of the many "extracurricular" activities during the Conference will be a tour of Carillon Historic Park. Located on 65 acres of beautifully landscaped grounds on the southwest side of Dayton. This outdoor museum features Ohio's largest carillon, the 57-bell Deeds Carillon; the 1905 Wright Flyer III, the world's first practical airplane and a National Historic Landmark; a large collection of antique bicycles, automobiles and rail equipment; and 23 exhibit buildings and structures that help interpret the Dayton area's rich heritage, especially in transportation technology. The Park has been described as "a walk back in time" by many Daytonians.

There will be an entrance fee of \$5 for adults, \$4 for seniors 60 and older, \$3 for students 3-17, and free for children under 3.

### HUFFMAN PRAIRIE FLYING FIELD AND INTERPRETIVE CENTER

Part of Dayton Aviation Heritage National Historic Park, the visitors center uses state-of-the-art interactive exhibits to tell the story of how the Wright Brothers went beyond proving that flight was possible to making flight practical at Huffman Prairie Flying Field. The center also tells the story of how this 80-acre field grew into Wright Patterson Air Force Base and how what the Wright Brothers started continues today at Wright Patterson. Visit the Huffman Prairie and walk where the Wright Brothers taught the world to fly!

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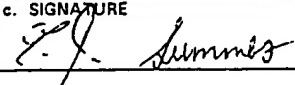

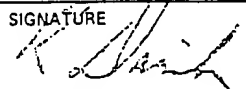
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(Please read Privacy Act Statement and Instructions on back before completing this form.)

Form Approved  
OMB No. 0704-0207  
Expires Jun 30, 2001

The public reporting burden for this collection of information is estimated to average 20 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to Department of Defense, Washington Headquarters Services, Directorate for Information Operations and Reports (0704-0207), 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

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2. INDIVIDUAL OR ENTERPRISE DATA (Referred to as a "certified contractor" upon acceptance of certification by the U.S./Canada - JCO)					
a. NAME Lockheed Martin Corporation		b. ADDRESS (Include Province and/or 9-digit ZIP Code) P.O. Box 748 Lockheed Blvd Fort Worth, TX 76101-0748 USA			
c. NAME OF SUBSIDIARY/DIVISION Lockheed Martin Aeronautics Company					
d. FSCM/FSCNM/CAGE/DSS VENDOR CODE 81755		e. TELEPHONE NUMBER (Include Area Code) 817-777-2000			
3. DATA CUSTODIAN V. G. Harris					
a. NAME OR POSITION DESIGNATION (See Instructions) V.G. Harris		b. BUSINESS MAILING ADDRESS (Include Province and/or 9-digit ZIP Code) P.O. Box 748 MZ 2246 Fort Worth, TX 76101-0748 USA			
c. TELEPHONE NUMBER (Include Area Code) 817-763-1791					
d. TITLE Librarian					
4. DESCRIPTION OF RELEVANT BUSINESS ACTIVITY (Print or type)  Design and construction of advanced military aircraft and derivatives. Also, retrofit and modifications of existing aircraft platforms.					
5. AS A CONDITION OF RECEIVING MILITARILY CRITICAL TECHNICAL DATA, THE INDIVIDUAL OR ENTERPRISE CERTIFIES THAT:					
a.(1) CITIZENSHIP/RESIDENCY STATUS. The individual designated either by name or position designation in Item 3, who will act as custodian of the militarily critical technical data on behalf of the contractor, is: (X (a), (b), (c), or (d))		c.(2) agree not to disseminate militarily critical technical data in a manner that would violate applicable U.S. or Canadian export control laws and regulations.			
<input checked="" type="checkbox"/> (a) A U.S. CITIZEN		<input type="checkbox"/> (b) A CANADIAN CITIZEN			
or a person admitted lawfully for permanent residence into:		d. They will not provide access to militarily critical technical data to persons other than their employees or eligible persons designated by the registrant to act on their behalf unless such access is permitted by U.S. DoDD 5230.25, Canada's TDCR, or by the U.S. or Canadian Government agency that provided the technical data.			
<input type="checkbox"/> (c) THE UNITED STATES		<input type="checkbox"/> (d) CANADA			
(2) BUSINESS LOCATION. Business of individual listed in Item 3 is located in: X (a) or (b)		e. No person employed by the enterprise or eligible persons designated by the registrant to act on their behalf, who will have access to militarily critical technical data, is disbarred, suspended, or otherwise ineligible to perform on U.S. or Canadian Government contracts or has violated U.S. or contravened Canadian export control laws or has had a certification revoked under the provisions of U.S. DoDD 5230.25 or Canada's TDCR.			
<input checked="" type="checkbox"/> (a) THE UNITED STATES		<input type="checkbox"/> (b) CANADA			
b. The data are needed to bid or perform on a contract with any agency of the U.S. Government or the Canadian Government or for other legitimate business activities in which the contractor is engaged, or plans to engage.		f. They are not themselves debarred, suspended, or otherwise ineligible to perform on U.S. or Canadian Government contracts, and have not violated U.S. or contravened Canadian export control laws, and have not had a certification revoked under the provisions of U.S. DoDD 5230.25 or Canada's TDCR.			
c. They (1) acknowledge all responsibilities under applicable U.S. export control laws and regulations (including the obligation, under certain circumstances, to obtain an export license from the U.S. Government prior to the release of militarily critical technical data within the United States) or applicable Canadian export control laws and regulations, and					
6. CONTRACTOR CERTIFICATION I certify that the information and certifications made by me are true, complete, and accurate to the best of my knowledge and belief and are made in good faith. I understand that a knowing and willful false statement on this form can be punished by fine or imprisonment or both. (For U.S. contractors see U.S. Code, Title 18, Section 1001 and for Canadian contractors see Section 26 of the Defense Production Act.)					
a. TYPED NAME (LAST, First, Middle Initial) Summers, Tom J.		b. TITLE Manager Contracting Processes		c. SIGNATURE 	d. DATE SIGNED 5/16/00
7. CERTIFICATION ACTION (X one)					
<input checked="" type="checkbox"/> a. CERTIFICATION ACCEPTED. This certification number, along with a statement of intended data use, must be included with each request for militarily critical technical data.				NUMBER 0000531	
<input type="checkbox"/> b. RETURNED. Insufficient information:					
<input type="checkbox"/> c. REJECTED. Does not meet eligibility requirements of DoDD 5230.25 or of Canada's TDCR.					
8. DOD OFFICIAL			9. CANADIAN OFFICIAL		
a. TYPED NAME (LAST, First, Middle Initial) Larry G. Trovena			a. TYPED NAME (LAST, First, Middle Initial) Robert H Davidson		
b. TITLE U.S. Representative U.S./Canada Joint Certification Office			b. TITLE Canadian Representative U.S./Canada Joint Certification Office		
c. SIGNATURE 		d. DATE SIGNED MAY 24 2000	c. SIGNATURE 		d. DATE SIGNED MAY 24 2000

**SOCIETY FOR THE ADVANCEMENT OF  
MATERIAL AND PROCESS ENGINEERING**



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